# On Genetic Interests

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## Family, Ethnicity, and Humanity in an Age of Mass Migration

## Frank Salter

With a new introduction by the author

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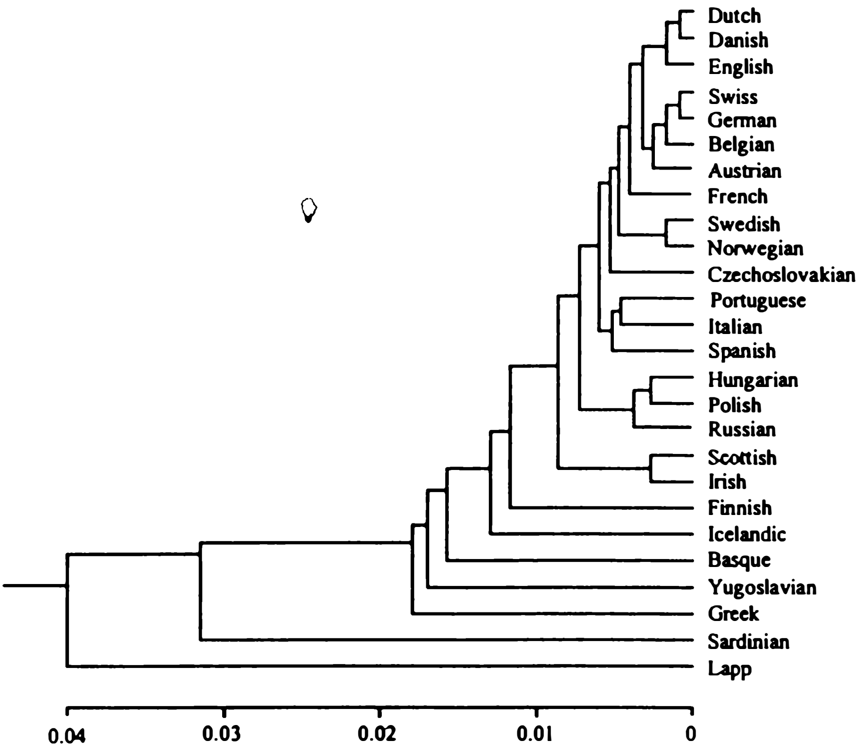
This book is dedicated to four scientists whose contributions to the understanding of genetic interests inspired this book—the late William Hamilton (1936–2000), Irenäus Eibl-Eibesfeldt, Pierre van den Berghe, and Edward O. Wilson.

analysis to the assay of 120 selectively neutral alleles conducted by Cavalli-Sforza and colleagues[48] indicates that even the various European populations, much closer genetically than continentally separated races, have a genetic dimension, and that the lineage **tree** connecting those populations is what a reasonably well informed historian or demographer or tourist would expect.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Genetic distance ($F_{ST}$)

Figure 2.2 Genetic tree of 26 European populations based on $F_{ST}$ measures estimated from an assay of *88* genes (from Cavalli-Sforza et al. *1*994, *p*. 2 6 ).

Consider for example the genetic tree of 26 European populations **presented** by Cavalli-Sforza et al.[49] It shows the Swiss and Germans as belonging **in the** same cluster, with Swedes and Norwegians in another. The groupings are **not** always intuitive. For example, Portuguese and Italians are closer together than either is to Spanish, though the differences are slight and all three speak romance languages. The French, though speaking a romance language, are closer to the Germanic cluster than they are to the Italian-Portuguese-Spanish cluster. The latter exception to the broad correlation between linguistic and genetic similarity is explained by Cavalli-Sforza et al. as follows. The French language originated from the Roman occupation of Gaul, populated by at least 74 mostly Celtic tribes with some Germanic admixture. However, Celtic peoples were themselves the result of multiple ethnic admixtures within central and northern Europe, and the whole region is relatively genetically homogeneous. Hence French genes are, on average, more similar in frequencies to the genes of central and northern Europe than they are to frequencies found in Italy or the Iberian peninsular, where both Celtic and Germanic settlement came later and in smaller numbers. Another exception to the language-gene correlation is Hungary, whose genes are closer to those of Poles than the latter are to Russians', even though Poland and Russia both speak Slavic languages and Hungarians speak a Uralic language closest to Finnish, Lapp, and Estonian. Cavalli-Sforza et al. explain that Hungarian was imposed by the conquering Magyars who originated in the Urals. But the Magyar genetic contribution was not enough to alter the population's predominant genetic similarity to its neighbours.[51] Despite linguistic boundaries being weakly correlated with genetic boundaries, European ethnics nevertheless have a fuzzy genetic distinctiveness, contrary to Cavalli-Sforza's summation.

Another reason to doubt the view implied by Cavalli-Sforza - that populations are so mixed that ethnic kinship is effectively zero is offered by British geneticist Bryan Sykes. Based on comparison of mitochondrial DNA, a genetic sequence inherited from the maternal line, Sykes disconfirmed Cavalli-Sforza's theory that the European gene pool was replaced by Neolithic farmers who entered Europe about 8,000 years ago. The 'demic-diffusion' theory is the reason Cavalli-Sforza emphasizes the cline running from South-East to North-West Europe. According to his theory, the discovery of farming in the Near East led to a demographic explosion and an advancing wave of migrating farmers who arrived in Europe in such large numbers that they swamped the indigenous hunter-gathers who had settled there tens of thousands of years earlier.[52]

If Cavalli-Sforza's theory were correct then Europeans could not trace much of their ancestry back to the Palaeolithic and to the Cro-Magnons who replaced the Neanderthals. The theory is subversive of belief in European distinctness. since it amounts to the view that Europeans are relatively recent settlers and largely of Near Eastern origin. The slight but noticeable regional differences in colouration, physiognomy, and physique would be surface characteristics produced by only a few thousand years' evolution acting on a Near Eastern population, instead of the result of tens of millennia of environmental and social selection operating on indigenous peoples. However, in 1996 Sykes and colleagues advanced an analysis of mitochondrial DNA indicating that only 15-20 percent of the European gene pool is derived from the Near East.[53] Moreover, regional clusters of mitochondrial strains pointed to six founding populations - at least on the maternal line - dating from between 45,000 and 15,000 years ago to the original Cro Magnon settlement of various different regions of Europe (a seventh founding population was the early farmers who entered Europe in the Neolithic). For example, the mitochondrial analysis of Basque genes indicated that this population was not a rare remnant of the original European hunter-gatherer population, but a representative European population.[54] As Sykes expressed the implications of his findings for European identity, 'There were not the faint whispers of a defeated and sidelined people but a resonant and loud declaration from our hunter-gatherer ancestors: "We are still here."'[55]

Sykes's mitochondrial analysis of European origins was confirmed by an analysis of Y-chromosomes of 1007 European males conducted by an international team that included Cavalli-Sforza.[56] This chromosome, which determines male sex, is passed down the paternal line. This study confirmed the 20 percent admixture of Near Eastern genes in European populations and found evidence of ten founding tribes in the Palaeolithic. Thus clusters of Europeans, while showing some relatively recent admixture from outside Europe, are a largely autochthonous people who can trace their origins back for several tens of thousands of years to a small number of founding tribes. Cavalli-Sforza's broad cross-cutting clines do exist, but have not in the main reduced regional distinctiveness. Ethnic genetic interests exist within a region even as criss-crossed with migration routes as Europe.

Cavalli-Sforza emphasizes the fuzziness in the genetic map of Europe. It is likely that some group differences are so small that only a marginal genetic interest exists in the home group. The ethny has little or no genetic interest for those individuals whose characteristic genes occur at low frequencies in the population and who have few blood relatives within it. While this should not be ignored, neither should the fact that ethnic genetic interests are usually larger than those found within families. For the majority the interest is real vis-a-vis most other groups, so long as the group is a descent group, which most ethnics are.[57] As is clear from Cavalli-Sforza et al.'s world-wide data reproduced in Table 3.1, genetic differences can be relatively sharp when two groups are brought together due to transcontinental migration. In this case the hundreds of intervening clines concertina to form a deep fault line. The underlying genetic distance between such populations is often marked by pronounced physical differences of colour, stature and physiognomy, as well as many other differences, including proneness to different diseases and responses to medication.[58] Such racial differences, especially when occurring together in sets, are reliable indicators of large genetic distance.

Improvements in genetic sequencing methods are allowing ever more accurate surveys of the genetic plateaux of human relatedness, measured in gene frequencies and summarized as genetic distances. As techniques and data become more fine-grained, more people should be able to identify their ethnic genetic interests. If present scientific trends continue, they will discover that their ethnies are super families containing large deposits of their distinctive genes. In Chapters 6 and 7 I shall argue that ethnic kinship can be safely mined using the right social technologies. Like the fossil fuels that still power our industry, ethnic kinship was laid down over the ages. Its volatility risks explosion and depletion. It recovers slowly from admixture. Yet it resembles a renewable resource when properly conserved. Ethnic kinship is the ultimate form of social capital, an adaptive basis for altruism and thus trust and cooperation.

To conclude, the theory surveyed in this chapter indicates that concentrations of genetic interests are highest in families, declining to the ethny, thence to geographic race, and declining further in concentric circles of relatedness to the whole species. In the absence of threats to the species as a whole, individuals have no genetic interest in it. However, because of their size, ethnies carry large genetic stakes for their members. Just how large ethnic genetic interests can be is calculated in the next chapter, where I express these interests in units of kinship.

## Notes

1 Keith (1947/1968).
2 Boyd and Richerson (1985); Sober and Wilson (1 9 8).
3 van den Berghe (1979, p. 179 fn).
4 Eibl-Eibesfeldt (1982).
5 Eibl-Eibesfeldt (1 9 8/2 0 2, pp. 2 6 1
6 Cavalli-Sforza (1 9 1).
7 Eibl-Eibesfeldt (1982, p. 14).
8 Eibl-Eibesfeldt (1989, p. 1 0 ).
9 Rushton et al (1984); Russell et al. (1985).
10 E.g. G r en (1990, pp. 50–51).
11 Hamilton (1970; 1972); for a discussion see Pepper (2 0 0, pp. 355 - ).
12 Grafen (1 9 , p. 46).
13 Pepper (2 0 0, p. 356).
14 E.g. Grafen (1990).
15 Hamilton (1975, especially pp. 141-50). This paper was called 'reductionist racist, and ridiculous' by the anthropologist S. L. W a hb u in 1976 (quoted by Hamilton 1 9 6, p. 317). The offending passage (pp. 149-50) speculates that ba r a inva-

sions introduce genes coding for altruism into old civilizations, revitalizing them after the time of a few centuries of assimilation. Hamilton, like Fisher (1930/1999, Chapter 12), thought that civilization was dysgenic, though for different traits (Fisher was concerned mainly with the decline of traits for economic competence. However, like Hamilton he argued that heroism and class bonding were found mainly in primitive tribes—heroism often to an excessive degree—were selected out once such a tribe became civilized (1930/1999, pp. 245-50)). The idea of a decline of gene-based altruism within civilizations is a biological version of the Islamic historian Ibn-Khaldun's (1332-1406) famous thesis set out in The Mugaddimah (Hill 1993). To the end of his life Hamilton defended his speculations as plausible and worth making. Regarding the paper as a whole, 'I have hardly changed my opinions and certainly haven't with regard to what Washburn indicated as the most offending passage' (Hamilton 1996, p. 317). But he did allow that he should have included the word 'cultural' at one point to reinforce his already expressed view that there are cultural as well as genetic factors at work in forging altruism. 'However, I have never seen any evidence that a genetic interpretation or a genetic component is out of court and the idea in general continues to be justified to my mind' (ibid.). Hamilton did not think the idea insulted or threatened any race.

16 It is remarkable that leading population geneticists such as L. Cavalli-Sforza have not discovered or used Hamilton's work. Hamilton (1975) and Cavalli-Sforza and Bodmer (1971/1999) appear to have conducted their investigations in ignorance of one another. This is not surprising given that Hamilton's theory took until the mid 1970s to acquire fame among evolutionary biologists (Segerstråle 2000, p. 54). The paper's reputation was enhanced by E. O. Wilson's exposition of the theory in his 1975 text *Sociobiology* and by Dawkins's popularization in The Selfish Gene (1976). However, the question remains as to why mainstream population genetics continued to ignore such an important theory. Bodmer and Cavalli-Sforza (1976, p. 554) briefly refer to kin selection theory without offering references while Cavalli-Sforza et al. (1994) cite none of the sociobiological theorists. Sociobiological research is not cited in Cavalli-Sforza's books (1991; 1995; 2000). Even one of his books that dealt with cultural transmission between kin failed to incorporate inclusive fitness theory (Cavalli-Sforza and Feldman 1981). Part of the explanation is that Cavalli-Sforza has been mainly interested in explaining the evolution of physical traits and culture rather than social behaviour. However, he has repeatedly commented on issues of nationalism, racism, and migration, issues intimately bound up with altruism and kinship. Yet based on Cavalli-Sforza's work alone one would never guess that parents had a genetic interest in their children. By 1975 Hamilton had refined inclusive fitness theory such that it could estimate inclusive fitness from gene assay data, surely a major step for population geneticists seeking to understand social evolution. The puzzle of Hamilton's absence from Cavalli-Sforza's work is deepened by the fact that both admired the evolution theory of R. A. Fisher (e.g. Cavalli-Sforza 2000, p. 22) and had adopted his gene-centred theory. Until Hamilton modified his theory, both adopted essentially the same definition of the coefficient of kinship. Hamilton can be forgiven for failing to reference population genetics literature published years after his pathbreaking paper appeared, but the reverse is perplexing. A scientist with the scholarly sweep of Cavalli-Sforza must have been aware of Hamilton's theoretical work.

17 Another remarkable result of Hamilton's model is that, again contrary to intuition, the ceiling for intra-tribal kinship is not sensitive to either the size of tribe or the pro

proportional rate of migration. What counts is the absolute number of migrants per unit time (1975, pp. 142-3). Low rates of inter-tribal migration (exogamy) would have allowed the retention of high intra-group relatedness, and thus maintained the tribe as a large store of genetic interests.

18 E.g. Tooby and Cosmides (1989, p. 544).

19 It should be noted that Tooby and Cosmides acknowledge the existence of such a tribal genetic interest by arguing that 'an individual's decisions on coalition formation, . . . when summed over the members of the two groups, would often have aggregated into substantial inclusive fitness effects' (1989, p. 544). This misses the evolutionary origin of rising group kinship over hundreds of generations, but is nevertheless consistent with that part of Rushton's (1989) argument dealing with ethnic group competition. At the proximate level there is some evidence of the importance of genealogical knowledge in primordial group processes. For example, in contemporary primitive societies kinship strongly affects group fissioning, alliance formation, and extended exchange networks (e.g. Chagnon 1980; Koch 1974; Wiessner 2002b).

20 Hamilton (1975, pp. 140-1; (p. 337 in the 1975/1996 reprint)). See also Michod and Hamilton (1980/2001, pp. 108-9), where they state that the 'coefficient of relatedness' and 'regression coefficient of genotype of recipient on genotype of altruist' are the same except when the interactants are inbred to different degrees. Michod and Hamilton (1980/2001) reviewed at least ten definitions of relatedness formulated to that date and concluded that they were all equivalent

21 Hamilton (1975, p. 142).

22 Dawkins (1979, p. 187).

23 Dawkins (1978, p. 67).

24 D. S. Wilson and Sober (1989); D. S. Wilson (2002).

25 Hamilton (1975/1996, p. 360).

26 E.g. Morton (1982); Gudmundsson et al. (2000).

27 Cavalli-Sforza et al. (1994, p. 29).

28 Harpending (1979, p. 624).

29 Scattered statements by Cavalli-Sforza and colleagues, when taken together, indicate that $F_{ST}$, the measure of genetic distance, is also a measure of the kinship coefficient within subdivisions, but I could not find an exposition of the relationship in their work. Cavalli-Sforza and Bodmer (1971/1999, p. 39; and see p. 451) state that '[t]he mean kinship coefficient can be equated to Wahlund's variance'. Cavalli-Sforza et al. (1994, p. 29) denote Wahlund's variance by '$F_{ST}$'· the measure of genetic distance used in their world survey. See also Wright (1951).

30 Hamilton (1971, p. 89).

31 Harpending (1979, p. 624); and see Appendix 1 by Harpending.

32 Haldane's (1955).

33 Hamilton (1971, p. 89).

34 D. S. Wilson (2002, pp. 37-9).

35 Hamilton (1975); Harpending (1979).

36 Hedges et al. (1991); A. C. Wilson and Cann (1992).

37 Cavalli-Sforza (2000, pp. 7 ).

38 A genetically-informed de Gobineau might have limited himself to claiming that Europe is the most homogeneous of continents, as do Cavalli-Sforza et al. (1994, p. 122). One might interpret medical geneticists' search for homogeneous populations as

a search for racial purity (Gulcher et al. 2000). Populations that have remained endogamous for many generations are prized by researchers because they facilitate identification of genes responsible for various illnesses. Geographically isolated populations in Finland and Iceland as well as religiously isolated populations such as Jews are examples. These populations are relatively homogeneous, but none is ethnically pure in any absolute sense (e.g. Helgason, A., et al. 2000; Thomas et al. 2002).

39 Genetic drift causes kinship between random group members to increase each generation at a rate of 1/2*N*, where *N* is the breeding population (Cavalli-Sforza and Bodmer 1971/1999, p. 707). Assume that ancestral human groups were as large as contemporary tribes and hunter-gatherer dialect groups, about 500, each with 300 reproducing individuals, so that *N* = 300. Then each generation within-population kinship increases by about 0.0017. Assuming a generation time of 25 years. Then every thousand years kinship increased by about 0.07, which is slightly greater than the kinship of first cousins. At that rate, in as little as 3,750 years the genetic distance between isolated populations would be so great that random group members would have a kinship of 0.5, or that between parent and child.

40 E. O. Wilson (1971, pp. 204–8; 1975, p. 569).

41 Lumsden and Wilson (1981).

42 E.g. Soltis et al. (1995).

43 Hamilton (1975).

44 Thorne and Wolpoff (1992); Wolpoff and Caspari (1997).

45 Wolpoff et al. (2001).

46 Lumsden and Wilson (1981).

47 Cavalli-Sforza et al. (2000, p. 22).

48 Cavalli-Sforza et al. (1994, p. 73).

49 *Ibid.*, p. 268, Figure 2.4.

50 Ibid., pp. 280–5.

51 Ibid., p. 263.

52 'If the population of Europe is largely composed of farmers who gradually immigrated from the Near East, the genes of the original Near Easterners were probably diluted out progressively with local genes as the farmers advanced westwards. However, the density of hunter-gatherers was probably small and the dilution would thus be relatively modest' (Cavalli-Sforza and Bodmer 1976, p. 548, quoted by Sykes 2001, pp. 151-2). This quote was followed by a qualification, to the effect that the degree of demic diffusion of Neolithic Europe by Near Eastern genes was 'not yet settled' and required further research.

53 Richards et al. (1996); Sykes (2001).

54 Sykes (2001, p. 143).

55 *Ibid.*, p. 150.

56 Semino et al. (2000).

57 van den Berghe (1981).

58 Satel (2002).

# 3. Immigration and the Human Dimension of Ethnic Genetic Interests

Summary

In the global village all humans become each other's genetic competitor, regardless of intent. Ethnic kinship (ethnic genetic interest) only exists in relation to other ethnics as genetic competitors. Ethnic genetic interest is lost when all or part of an ethny is replaced by another ethny. Immigration effectively replaces part of the native population when it does not permanently raise the territory's carrying capacity by an amount sufficient to allow for the immigrant. Hamilton's theory allows us to express ethnic genetic interest as an equivalent number of children. Asymmetric immigration between closely related ethnics replaces native children in the receiving population by a small amount, while immigration from genetically distant populations has large effects.

In the previous chapter I presented evidence indicating that ethnic genetic interests are usually of significant proportions and often large. ‘Ethnic genetic interest’ is a cold analytic concept. What does it mean in terms of human values? Familial genetic interest is readily grasped to be a vital interest, The death of a child or other family member has a great emotional impact. Rises and falls in family genetic interests are powerfully registered in the joy of a new birth and the grief of a loved one’s passing. But ethnies are composed of anonymous multitudes. The ebb and flow of an ethny do not impress themselves on members as reliably as do fluctuations in family size. A family member who dies in his sleep is mourned, but the decline of an ethny due to low birthrates and peaceful immigration from other ethnies can escape notice, even though the damage is much greater. One might arouse a sense of interest by applying a tribal metaphor, for example by referring to ‘the nation’ or ‘the people’, but this large unit is unsuitable for measuring our genetic stake in relatively small numbers of fellow ethnics.

One way to put a human face on ethnic genetic interests would be to count it in equivalent number of family members. In the previous chapter I reported the insight of the great geneticist J. B. S. Haldane, that it is adaptive to give one’s life for two siblings or eight cousins, but not for fewer. We are now in a position to apply Haldane’s human metric to ethnic kinship, since ethnies are, genetically, extended families. For how many drowning co-ethnics is it adaptive to risk one’s life? The answer is at hand, using the theory reported in the previous chapter. Answering Haldane's question is the goal of the present chapter.

Before getting to numbers, it is necessary to identify the modern events affecting ethnic genetic interests. This is ultimately a matter of population size, which can be directly reduced through warfare, genocide, and the loss of limiting resources such as territory. The fact that a 30 percent loss of population is a 30 percent loss of ethnic genetic interest is obvious. But competition can have powerful effects without any behaviour that is aggressive in the usual sense of the word. The prime examples in the contemporary world are peaceful migration between states and high rates of reproduction of one ethnic group within a multiethnic state. Group competition can involve peaceful as well as violent means. Examples of peaceful means are 'competitive breeding'[1] and discrimination, for example in economic affairs. The tribes within which humans have spent so much of their history were territorially based and policed their borders. The same is true of modern states. The special quality of a defended territory is that it insulates the population from the vicissitudes of demographic disturbances in the metapopulation, namely the connected phenomena of uneven population growth and migration. When an ethny controls the borders of a territory that is large enough to support the population, loss of numbers relative to other ethnies is not necessarily fatal, i.e. it need not lead to replacement. Territory adequately defended guarantees continuity and the chance to ride out a temporary downturn in numbers.

Thus a fundamental, though by no means unique, threat to ethnic genetic interests is loss of the ethnic monopoly of a territory. The great advantage of this monopoly is that it facilitates continuity of the tribe's gene pool by boosting the group's ability to defend against mass immigration, whether violent or peaceful. Defence of a territory is a basic ethnic group strategy, a cooperative group effort among members of the same ethny to defend themselves from or compete with members of other ethnies. The strategy is as adaptive today as in primordial environments. A decimated, defeated, or impoverished population has a chance to recover if it retains control of its territory. But a large-scale influx of genetically distant immigrants has the potential permanently to reduce the genetic interest of the original population.

Mass migration between diverse populations combined with the existence of public goods in wealthy societies such as low cost medical support and other forms of welfare have produced effective ethnic competition within many Western states. For example the founding European-derived ethnies of the United States are set to become a minority in that country by the middle of the 21st century, falling to 40 percent by 2100.[2] A similar though slower pattern of replacement is occurring in some other Western societies, due to the combination of below-replacement birth rates and immigration from genetically distant populations. The typical pattern is for the native born population to be falling in numbers due to an excess of deaths over births, but the overall population to be relatively stable due to immigration. This is the case in the following countries (with excess of deaths over births in brackets): Italy (11 percent), Sweden (7 percent), Germany (14 percent), and Austria (0.6 percent).[3] In Britain, government forecasts indicate that immigration alone will account for half the growth of the population in the first two decades of the twenty-first century. Moreover, non-white immigrants usually have higher fertility than the white British population. If the non-white minority continues to grow at the high end of its 2 - percent annual growth rate reported since 1950, whites will be in the minority in the British Isles by 21 0. On current trends, whites will be in the minority in London by 2010.[4] The Dutch port city of Rotterdam has a population of 540,000 people, 45 percent not of Dutch descent.[5] If present trends continue the Hague will be minority Dutch by 2020 and Israelis of Jewish descent will become a minority in Israel by about 2030 due to higher Arab fertility and immigration in the family reunion category.[6] Russia's Far East, explored and settled in the seventeenth century by a Slavic population, is being swamped by Chinese migrating north. Unless the trend is reversed, ethnic Russians are set to lose about 40 percent of their territory or, if they retain it, to be significantly replaced in Russia as a whole.[7] These challenges are real enough for majorities but minorities have usually fared worse as diaspora peoples have discovered through the trials of centuries. Not to control a territory creates risks of repeated group subjugation, displacement, and marginalization. For all of past human experience and still today, control of a territory is a precious resource for maintaining ethnic genetic interests in the long run.

## Territory and population carrying capacity

It might seem that (mates and land) would not repay the expected cost of (warfare), but it has to be remembered that to rise more often in a group either new territory or outside mates have to be obtained . . . (W. D. Hamilton).[8]

The continuing relevance of ethnic genetic interests in an age of mass immigration is indicated by ecologist Garrett Hardin's analysis of global and national population carrying capacity.[9] Hardin begins by noting that in the modem world most habitable spaces have been colonized. Moreover, the earth's surface has a limited carrying capacity, as do its parts. This is the maximum population beyond which some value, such as freedom from hunger or overcrowding, is lost.

The most basic carrying capacity is the number beyond which population growth is self correcting, because any further growth is cancelled out by die-offs. Technological advance can increase carrying capacity, but only in finite steps.[10]

E. O. Wilson uses a different analysis to make essentially the same point: the earth is full and its present population is probably unsustainable.[11] His formulation is based on the 'ecological footprint', which is 'the average amount of productive land and shallow sea appropriated by each person in bits and pieces from around the world for food, water, housing, energy, transportation, commerce, and waste absorption'. The developing world has a per capita ecological footprint of about one hectare, while that for the United States is 9.6 hectares. If every human being were to consume at the average level of the United States with existing technology. four more planet earths would be needed. Populations and levels of consumption appear set to continue growing for the time being, but only at the cost of lost biodiversity and a collapse in the earth's capacity to renew ecosystems. Population must level off at some point whether through design or accident. Either way, average family size must fall to that of zero population growth, about 2.1 children.

Hardin points out that capping global population growth requires that every state limit its numbers to the carrying capacity of its ecological resources.[12] Each society's ecological footprint must not, in the long run, exceed that of the territory it controls. However, a society practising such self discipline is vulnerable to immigration, because any net intake will reduce the relative size of the native population. Hardin does not discuss ethnic genetic interest, but does remark that in this situation the cost of immigration would fall 'most heavily on potential parents, some of who(m] would have to postpone or forego having their (next) child because of the influx of immigrants'. To imagine such an extreme future world one need only contemplate the present situation in China, where the government administers a strict policy limiting families to one child. Note, however. that China's overpopulation is due to past organic population growth, not immigration. Hardin thus only considers individual fitness, though this is an important advance on most analysts. As we saw in the previous chapter, the damage done to the native hosts' ethnic genetic interests can be much larger than the effect on their individual fitnesses.

Immigrants must affect a country's capacity to hold the native population. If the immigrants contribute to the economy in ways that the native population cannot, the carrying capacity is raised. If they are a drain on resources or average productivity, they lower that capacity by taking the place of potential native born. In the present example, let us assume that immigrants have equal capacities to the native born, and let us consider immigrants in lots of 10,000. Such a number of immigrants will lower the effective carrying capacity of a country by

10,000, more or less; more if the immigrants have a higher birth rate than the native population; less if their birthrate is lower. To simplify further, assume that birthrates are equal, in which case the loss of effective carrying capacity is 10,000. If the immigrants and native born have the same ethnicity the native population loses no ethnic genetic interests. Kin are being replaced by kin of similar degree. But if the immigrants are from different ethnies, especially genetically distant ones, there will be a loss of genetic interests for each member of the native population. How large is that loss measured in units of kinship?

## Ethnic genetic interest expressed as numbers of kin

At first sight the data on inter-ethnic kinship might appear rather counterintuitive. Consider the data from Cavalli-Sforza et al. (see Table 3.1).[13] Assuming that these figures accurately reveal overall patterns of ethnic kinship, they indicate that intra-ethnic kinship coefficients range from 0.0021 (random English in relation to Danes) to 0.43 (random Australian Aborigines in relation to Mbuti, a Pygmy population in Central Africa). Yet one would expect that kinships between autochthonous populations within the one region to be closer than those between continentally-separated populations. This seeming paradox is resolved by the realization that there is an inverse relationship between kinship within and between populations. This rule can be illustrated using Table 3.1. Consider the two examples just mentioned. Recall from the discussion in the previous section that if the world population were wholly English then the kinship between random pairs would be zero. But if the world consisted of the English and Danes, then two random Englishmen would have a slightly positive kinship of 0.0021 (kinship coefficients are multiplied by 10,000 in Table 3.1). This is slightly closer than the kinship of eight linear generations separation, or a descendant to his or her great great great great great great grandparent. In other words, because English and Danes are very close genetically, there is only marginal kinship between randomly chosen English (or Danes). A random Englishman would not lose many copies of his distinctive genes if another random Englishman were replaced by a Dane.

Since the kinships within and between populations stand in an inverse relation, an Australian Aborigine loses many more genes if a random fellow ethnic is replaced by an African, such as a Mbuti. This is because Australian Aborigines and the Mbuti Pygmies are very distant kin according to Cavalli-Sforza's data. In a world consisting of Aborigines and Mbuti, two random Aborigines (or Mbuti) are very close kin, almost as closely related as identical twins, with a kinship of 0.43 (identical twins have a kinship of 0.5). Such a replacement reduces the Abo-

| | BAN | EAF | WAF | SAN | MBU | IND | IRA | NEA | JPN | KOR | MNK | THA | MNG | MAL | FIL | NTU | SCH | BAS | DAN | ENG | GRK | ITA | CAM | ESK | PLY | AUS |
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| E. African | 658 | 0 | | | | | | | | | | | | | | | | | | | | | | | | |
| W. African | 188 | 697 | 0 | | | | | | | | | | | | | | | | | | | | | | | |
| San | 94 | 776 | 885 | 0 | | | | | | | | | | | | | | | | | | | | | | |
| Mbuti | 714 | 1232 | 801 | 1495 | 0 | | | | | | | | | | | | | | | | | | | | | |
| Indian | 2202 | 1078 | 1748 | 1246 | 2663 | 0 | | | | | | | | | | | | | | | | | | | | |
| Iranian | 2241 | 1060 | 1796 | 1267 | 2588 | 154 | 0 | | | | | | | | | | | | | | | | | | | |
| Near Eastern | 1779 | 709 | 1454 | 880 | 2138 | 229 | 158 | 0 | | | | | | | | | | | | | | | | | | |
| Japanese | 2361 | 1345 | 2252 | 1905 | 3089 | 718 | 1059 | 1056 | 0 | | | | | | | | | | | | | | | | | |
| Korean | 2668 | 1475 | 1807 | 1950 | 2 9 | 681 | 905 | 933 | 137 | 0 | | | | | | | | | | | | | | | | |
| Mon Khmer | 2446 | 1538 | 1951 | 1977 | 2766 | 866 | 1282 | 987 | 961 | 946 | 0 | | | | | | | | | | | | | | | |
| Thai | 3364 | 1602 | 2480 | 2064 | 3872 | 852 | 1155 | 1023 | 743 | 814 | 99 | 0 | | | | | | | | | | | | | | |
| Mongol-Tungus | 2882 | 1423 | 1733 | 1398 | 2568 | 5 | 681 | 827 | 218 | 170 | 1093 | 957 | 0 | | | | | | | | | | | | | |
| Malaysian | 1658 | 1216 | 1365 | 1434 | 1743 | 1130 | 1489 | 1173 | 1175 | 1001 | 264 | 455 | 1251 | 0 | | | | | | | | | | | | |
| Filipino | 2913 | 1770 | 2299 | 1922 | 3776 | 872 | 9 | 9 | 1020 | 1218 | 552 | 625 | 737 | 485 | 0 | | | | | | | | | | | |
| N. Turkic | 2486 | 1386 | 2163 | 1448 | 2989 | 638 | 821 | 710 | 627 | 732 | 1259 | 1225 | 728 | 1189 | 1044 | 0 | | | | | | | | | | |
| S. Chinese | 2963 | 1664 | 1958 | 2231 | 3384 | 847 | 1092 | 983 | 541 | 498 | 254 | 105 | 705 | 635 | 315 | 1109 | 0 | | | | | | | | | |
| Basque | 1474 | 922 | 1299 | 1307 | 1965 | 418 | 285 | 246 | 1481 | 1063 | 1831 | 1726 | 1049 | 1784 | 1634 | 903 | 1675 | 0 | | | | | | | | |
| Danish | 1708 | 9 | 1458 | 1025 | 1462 | 293 | 179 | 238 | 1176 | 947 | 1463 | 1390 | 680 | 1628 | 1279 | 820 | 1306 | 184 | 0 | | | | | | | |
| English | 2288 | 1163 | 1487 | 1197 | 2373 | 280 | 197 | 236 | 1244 | 982 | 1100 | 1143 | 896 | 1275 | 1117 | 866 | 1152 | 119 | 21 | 0 | | | | | | |
| Greek | 1479 | 892 | 1356 | 1068 | 1735 | 272 | 70 | 129 | 1175 | 904 | 1482 | 1355 | 735 | 1482 | 1109 | 794 | 1095 | 231 | 191 | 204 | 0 | | | | | |
| Italian | 2292 | 1234 | 1794 | 1181 | 2931 | 261 | 133 | 2 0 | 1145 | 936 | 1446 | 1382 | 905 | 1599 | 1136 | 949 | 1236 | 141 | 72 | 51 | 77 | 0 | | | | |
| C. Amerind | 2237 | 1475 | 2293 | 2143 | 3499 | 1089 | 1199 | 1037 | 658 | 790 | 1522 | 1323 | 970 | 1731 | 1527 | 859 | 1192 | 1539 | 1266 | 1246 | 1271 | 1198 | 0 | | | |
| Eskimo | 3251 | 2116 | 2693 | 2217 | 3329 | 940 | 1234 | 1225 | 791 | 843 | 1595 | 1417 | 545 | 1617 | 1597 | 796 | 1304 | 1637 | 1180 | 1185 | 1254 | 1135 | 903 | 0 | | |
| Polynesian | 2649 | 1414 | 1992 | 1940 | 3136 | 927 | 1142 | 869 | 823 | 890 | 860 | 589 | 969 | 849 | 650 | 1147 | [illegible] | 1406 | 1210 | 991 | 1096 | 1215 | 1312 | 1415 | 0 | |
| Australian | 3272 | 2131 | 2694 | 2705 | 4287 | 1176 | 1546 | 1408 | 321 | 850 | 1699 | 1314 | 781 | 1665 | 1300 | 1580 | 1081 | 1949 | 1400 | 1534 | 1498 | 1413 | 1 3 | 1230 | 1145 | 0 |
| | BAN | EAF | WAF | SAN | MBU | IND | IRA | NEA | JPN | KOR | MNK | THA | MNG | MAL | FIL | N | S H | BAS | DAN | ENG | GRK | ITA | CAM | ESK | PLY | AUS |

*Table 3.1. $F_{s}$ distances × 10,000 between selected populations around the world (sampled from Cavalli-Sforza et al. 1994, p. 75; standard errors are omitted).*

rigine's inclusive fitness almost as much as eliminating an identical twin or two children.

Taken together with the limits imposed by carrying capacity, these kinship coefficients mean that, other factors being equal, asymmetric immigration is more harmful to the receiving population's genetic interests the more genetically distant the immigrants. The $F_{ST}$ distances shown in Table 3.1 allow us to estimate the loss in genetic interest caused by cross-migration of 10,000 individuals between 26 native populations. Appreciation of the genetic interests involved is aided by converting this loss to child-equivalents. Losses of genetic interest will not be counted in units of random fellow ethnics, but in the larger unit of offspring. As will be discussed in greater detail in Chapter 5 (p. 117–133), in Hamilton's town model the kinship of random co-ethnics could rise as high as that between parent and child in outbred populations.[14] Hamilton noted that when this happened, actual parent-child kinship would rise significantly higher, though he did not specify how high. Harpending (see Appendix 1) offers a formula for that higher figure, based on the $F_{ST}$ between populations.

$$f = 0.25 + 3F_{ST}/4 \qquad \ldots 3.1$$

Let us apply this formula in considering the impact on the genetic interests of a random Englishman of 10,000 ethnic Danes replacing 10,000 ethnic English (or vice versa). To simplify, let us assume that this is a neat replacement, so that over succeeding generations all the immigrants survive to reproduce.[15] We also assume that the Englishman loses no genealogical kin in the process. Replacement involves two effects, the removal of 10,000 Englishmen and the introduction of 10,000 Danes who, according to the population genetics formula we are using, have negative kinship to the English population. Recall that the English-Danish $F_{ST}$ is 0.0021. Then removal of 10,000 Englishmen in this case reduces the genetic interest of our random Englishman by 10,000 x 0.0021 = 21 kinship units. The replacing Danes bring a negative kinship of the same magnitude. Subtracting the latter from the former gives a loss to the Englishman's genetic interests of 42 kinship units. But what do those units mean in human terms? We can express those units as a number of children by dividing 42 by the parent-child kinship of the English. The latter is

$$\begin{aligned} f &= 0.25 + (0.0021 \times {}^{3}/_{4}) \\ &= 0.2516 \end{aligned}$$

The number of children lost due to the immigration of 10,000 Danes is therefore ${}^{42}/_{0.2516} \approx 167$. This is a large family indeed. Due to the loss of fellow ethnics alone the Englishman's genetic interests would be lowered by the equivalent of 167 children (or siblings). Repeating the scenario with Bantu immigrants, the loss to English genetic interest of replacement of 10,000 English is 10,854 children (or siblings).[16] Bantu suffer the same loss from 10,000 English immigrants to a Bantu territory.

This last figure is puzzlingly high. How can the loss due to replacement exceed the number replaced? Actually it does not, because we are counting genes, not individuals. The result only looks strange when gene counts are converted into child-equivalents, though the conversion is valid. Random members of an ethnic group are concentrated stores of each other's distinctive genes, just as children and cousins are concentrated stores. Some ethnics are so different genetically that they amount to negative stores of those distinctive genes. So migration has a double impact on fitness, first by reducing the potential ceiling of the native population, and secondly by permanently replacing those lost individuals' familiar genes with exotic varieties. Referring to carrying capacity also helps understand the dramatic loss of fitness caused by asymmetrical interracial immigration. In a large nation the loss of 10,000 fellow ethnics, say due to a natural catastrophe or war, could be made up in a generation, as the population rose to the country's carrying capacity. Filling their places with immigrants reduces that loss by an amount equal to the immigrants' kinship with the natives. When Danes replace English, the loss is almost completely reduced because the two ethnics are closely related. But when Bantu replace English (or vice versa) the loss is exacerbated, because these populations have large negative kinship with one another.

The loss is not diminished by somehow being spread across the entire ethny. For the native it is a collective loss in the same way that collective goods are shared without being diminished. It applies to *every* randomly-chosen member of the native ethny, wherever he or she may live. Children *per se* are not lost. We are assuming that there will be the same number of children in the society. Neither is it a symbolic loss for people everywhere, like some humanitarian disaster. After all, the immigrants produce replacement children. For them the process of ethnic replacement increases fitness. The loss is limited to the native ethny in a very personal way. For a native woman it is equivalent to the loss of her children and grandchildren, for a native man it is equivalent to the loss of *his* children and grandchildren, though on a much larger scale. The large scale of these ethnic genetic interests means that the loss is only slightly mitigated if these individuals' own children are not replaced.

It becomes clear from the above analysis that ethnic genetic interests are usually very large compared to familial genetic interests. The mathematics on which these estimates rely would need to be in gross error for this not to be true. Indeed, for inter-racial immigration the losses would still be large if ethnic kinship were one hundredth the values estimated above. Neither would inaccuracies in other assumptions of the analysis alter the result by much. For example, consider the mitigating effect of immigrants increasing the receiving country's long-term carrying capacity. I have assumed nil economic benefit (and cost), but the genetic loss will still be large even if the economic benefit mitigates half or even 90 percent of the loss. The result is also robust for all except radical modifications of the assumption of a neat replacement of natives by immigrants, since partial replacement still causes large losses of ethnic kin. Finally, two-way migration between ethnies must be almost perfectly symmetrical for costs and benefits to cancel.

Ethnies are indeed super families as van den Berghe argued. Although being more dilute stores of genetic interest than families, ethnies can number in the millions and so are often orders of magnitude more precious. If immigrants replaced one quarter of the English nation of approximately 50 million people, the remainder would suffer a very large loss even if their own relatives were not affected. If 12.5 million Danes and similar peoples moved to England, the genetic loss to the remaining English would be the equivalent of 209,000 children. The corresponding loss due to the same number of immigrants from India would be 2.6 million children, and due to Bantus over 13 million children. All these losses apply in the reverse direction, if there was mass English immigration to Northern Europe, India, or Bantu Africa.

Large ethnic genetic interests make public charity and self-sacrificial heroism directed towards one's ethnic group potentially adaptive. As we see from the above estimates, ethnic altruism is most adaptive when it aids fellow ethnics in the face of competition from genetically distant ethnies, such as those belonging to different geographic races. Figure 3.1 shows the relative genetic distances of the major races, based on the world-wide assay by Cavalli-Sforza et al.[17] The genetic distance measures between these races are shown in Table 3.2. Subjects were individuals who could trace their ancestry from indigenous populations, the autochthonous peoples that inhabited a region before the great migrations of the modern era began to mix geographical races from about 1600.

Like other racial differences, the English-Bantu genetic distance is large because the populations have been separated for many thousands of years. The genetic distance between English and Bantu is so great that, on the face of it, competition between them would make within-group altruism among random English (or among random Bantu) almost as adaptive as parent-child altruism, if the altruism were in the service of that competition. Thus it would appear to be more adaptive for an Englishman to risk life or property resisting the immigration of two Bantu immigrants to England than his taking the same risk to rescue one of

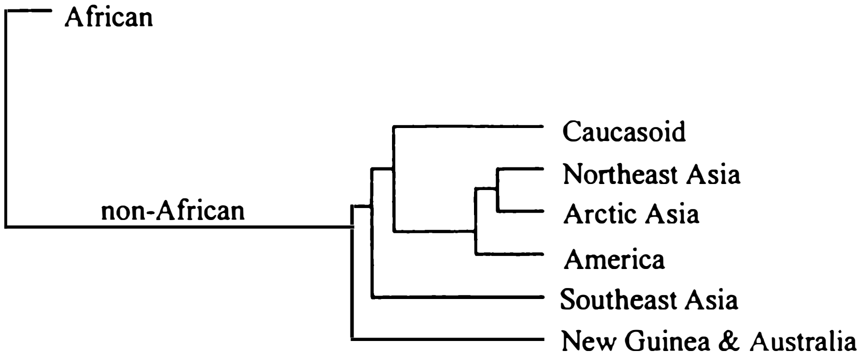


Figure *3.1*. Genetic distances between seven geographical races. Clustering is apparent (drawn from Cavalli-Sforza et al. 1994, p. 79).

| | AFR | NEC | EUC | NEA | ANE | AME | SEA | PAI |
|---|---|---|---|---|---|---|---|---|
| Africans | 0.0 | | | | | | | |
| Non-European Caucasoids | 1340 | 0.0 | | | | | | |
| European Caucasoids | 1656 | 155 | 0.0 | | | | | |
| Northeast Asians | 1979 | 640 | 938 | 0.0 | | | | |
| Arctic Northeast Asians | 2009 | 708 | 747 | 460 | 0.0 | | | |
| Amerindians | 2261 | 956 | 1038 | 747 | 577 | 0.0 | | |
| Southeast Asians | 22 0 | 940 | 1240 | 631 | 1039 | 1342 | 0.0 | |
| Pacific Islanders | 2505 | 954 | 1345 | 724 | 1181 | 1741 | 437 | 0.0 |
| New Guineans and Australians | 2472 | 1179 | 1346 | 734 | 1013 | 1458 | 1238 | 8 0 |
| | AFR | NEC | EUC | NEA | ANE | AME | SEA | PAI |

Table 3.2. Racial kinship coefficients of nine geographical races x 10,000. Racial kinship between random individuals varies according to competition (e.g. potential immigration) from different races. Random coethnics have zero kinship when the ethnic group is considered in isolation. (From $F_{ST}$ distances provided *by* Cavalli-Sforza et al. 1994, p. 80: rounded to nearest integers; standard errors omitted).

his own children from drowning, unless the immigrants were bringing qualities of such economic value that they would permanently raise the Island's carrying capacity. The same applies in the reverse direction; two Englishmen migrating to Bantu Africa constitute a greater loss of long-term genetic interest than does a random Bantu losing a child. But the genetic distance between English and

Danes is so small that in the equivalent situation it would be adaptive to take only a small risk in resisting small numbers of immigrants. Despite the potentially large payoff, intra-ethnic altruism can be maladaptive when it benefits the reproduction of free riders within the group. This problem and institutional counter-strategies are discussed in Chapter 6.

Cross racial immigration is most damaging to ethnic genetic interests. This becomes apparent if one considers the number of immigrants needed to reduce the ethnic genetic interest of a random native by the equivalent of one child (assuming as before that immigrants are economically equivalent to natives and that there is a finite carrying capacity for each country). Table 3.3 shows replacement numbers for immigration between races distributed around the world. Table 3.4 shows the numbers for immigration within Europe, a generally homogeneous region. The latter are usually about an order of magnitude greater than the former, meaning that immigration within a race is usually less harmful to ethnic genetic interests than immigration between races. There are exceptions. According to these data, immigration of non-European Caucasoids to Europe (and the reverse) is less harmful than Lapps or Sardinians immigrating to England (or the reverse) (see Table 3.4). Note, however, that this exception occurs within regional subsets of the broad Caucasoid racial group. The overall pattern is clear. Within local regions of Europe the genetic impact of immigration declines up to another order of magnitude. Immigration between ethnies of the same race can still be maladaptive for the receiving population, but the threshold is typically 10 to 100 times that of inter-racial immigration.

| Immigrants host | AFR | NEC | EUC | NEA | ANE | AME | SEA | PAI |
|---|---|---|---|---|---|---|---|---|
| Africans | < | | | | | | | |
| Non-European Caucasoids | 1.3 | c | | | | | | |
| European Caucasoids | 1.1 | 8.5 | < | | | | | |
| Northeast Asians | 1.0 | 2.3 | 1.7 | c | | | | |
| Arctic Northeast Asians | 1.0 | 2.1 | 2.0 | 3.1 | 0 | | | |
| Amerindians | 0.9 | 1.7 | 1.6 | 2.0 | 2.5 | a | | |
| Southeast Asians | 0.9 | 1.7 | 1.4 | 2.4 | 1.6 | 1.3 | 0 | |
| Pacific Islanders | 0.9 | 1.7 | 1.3 | 2.1 | 1.4 | 1.1 | 3.2 | w |
| New Guineans and Australians | 0.9 | 1.4 | 1.3 | 2.1 | 1.6 | 1.2 | 1.4 | 1.9 |
| | AFR | NEC | EUC | NEA | ANE | AME | SEA | PAI |

Table 3.3. Number of immigrants between nine geographical races needed to reduce the ethnic genetic interest of a random native by the equivalent of one child

| | BAS | LAP | SAR | AUT | CZE | FRE | GER | POL | RUS | SWI | BEL | DAN | DUT | ENG | ECE | IRI | NOR | SCO | SWE | GRK | ITA | POR | SPA | YUG | FIN |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Basque** | 0 | | | | | | | | | | | | | | | | | | | | | | | | |
| **Lapp** | 2.4 | 0 | | | | | | | | | | | | | | | | | | | | | | | |
| **Sardinian** | 5.2 | 2.2 | 0 | | | | | | | | | | | | | | | | | | | | | | |
| **Austrian** | 6.8 | 4.4 | 4.6 | 0 | | | | | | | | | | | | | | | | | | | | | |
| **Czech** | 8.2 | 3.0 | 4.2 | 35.1 | 0 | | | | | | | | | | | | | | | | | | | | |
| **French** | 13.8 | 3.9 | 4.8 | 33.3 | 17.7 | 0 | | | | | | | | | | | | | | | | | | | |
| **German** | 7.8 | 4.4 | 4.2 | 66.2 | 24.4 | 46.7 | 0 | | | | | | | | | | | | | | | | | | |
| **Polish** | 8.9 | 3.5 | 4.8 | 17.7 | 19.9 | 19.3 | 27.0 | 0 | | | | | | | | | | | | | | | | | |
| **Russian** | 9.3 | 4.2 | 5.1 | 19.9 | 17.0 | 21.6 | 21.2 | 42.0 | 0 | | | | | | | | | | | | | | | | |
| **Swiss** | 8.0 | 3.7 | 3.9 | 104 | 40.7 | 54.7 | 125 | 21.2 | 16.4 | 0 | | | | | | | | | | | | | | | |
| **Belgian** | 12.1 | 4.1 | 5.3 | 78.5 | 29.4 | 39.4 | 83.7 | 31.6 | 24.9 | 89.7 | 0 | | | | | | | | | | | | | | |
| **Danish** | 7.2 | 4.1 | 4.0 | 46.7 | 23.5 | 29.4 | 78.5 | 18.5 | 16.0 | 66.2 | 59.9 | 0 | | | | | | | | | | | | | |
| **Dutch** | 11.0 | 4.0 | 4.4 | 33.3 | 19.3 | 39.4 | 78.5 | 23.5 | 22.3 | 78.5 | 104 | 139 | 0 | | | | | | | | | | | | |
| **English** | 10.9 | 3.5 | 4.1 | 23.1 | 21.2 | 52.5 | 57.2 | 18.2 | 16.2 | 45.0 | 83.7 | 59.9 | 73.9 | 0 | | | | | | | | | | | |
| **Icelandic** | 6.0 | 2.9 | 3.5 | 8.5 | 7.6 | 8.9 | 12.2 | 9.1 | 7.8 | 11.2 | 16.4 | 14.6 | 12.8 | 16.8 | 0 | | | | | | | | | | |
| **Irish** | 9.0 | 2.6 | 3.6 | 11.2 | 11.1 | 13.8 | 15.3 | 8.7 | 8.2 | 14.9 | 17.0 | 18.8 | 16.8 | 42.0 | 13.0 | 0 | | | | | | | | | |
| **Norwegian** | 6.8 | 4.3 | 3.3 | 20.9 | 16.8 | 22.7 | 59.9 | 21.9 | 14.3 | 38.3 | 52.5 | 66.2 | 59.9 | 50.4 | 17.3 | 16.2 | 0 | | | | | | | | |
| **Scottish** | 8.9 | 3.2 | 3.9 | 17.3 | 12.4 | 20.5 | 24.0 | 10.7 | 10.1 | 21.6 | 21.6 | 31.6 | 26.4 | 46.7 | 11.6 | 43.5 | 21.9 | 0 | | | | | | | |
| **Swedish** | 7.8 | 4.1 | 3.7 | 16.0 | 14.3 | 16.4 | 32.4 | 15.6 | 11.7 | 23.1 | 37.1 | 35.1 | 30.9 | 34.2 | 12.2 | 13.7 | 69.8 | 17.3 | 0 | | | | | | |
| **Greek** | 5.8 | 4.4 | 7.0 | 14.9 | 10.3 | 9.9 | 9.1 | 7.4 | 8.1 | 8.8 | 12.5 | 6.9 | 6.7 | 6.5 | 4.7 | 4.7 | 5.7 | 5.3 | 5.8 | 0 | | | | | |
| **Italian** | 9.2 | 4.1 | 6.0 | 29.4 | 16.6 | 37.1 | 33.3 | 19.9 | 17.0 | 28.8 | 42.0 | 17.7 | 19.9 | 24.9 | 9.1 | 9.8 | 14.6 | 11.5 | 13.5 | 16.6 | 0 | | | | |
| **Portuguese** | 9.0 | 4.2 | 4.1 | 26.4 | 27.5 | 26.4 | 24.9 | 19.6 | 13.1 | 24.0 | 40.7 | 16.6 | 21.2 | 8.9 | 8.8 | 11.2 | 17.5 | 13.3 | 16.4 | 12.5 | 28.8 | 0 | | | |
| **Spanish** | 12.4 | 3.1 | 4.6 | 18.5 | 19.6 | 32.4 | 18.5 | 11.1 | 10.6 | 29.4 | 30.1 | 16.0 | 16.8 | 27.0 | 8.0 | 11.4 | 13.3 | 12.9 | 13.0 | 8.1 | 20.9 | 26.4 | 0 | | |
| **Yugoslavian** | 7.5 | 2.6 | 4.6 | 11.7 | 12.8 | 10.5 | 11.0 | 9.5 | 7.7 | 10.8 | 25.4 | 8.3 | 9.6 | 8.2 | 4.3 | 5.0 | 7.6 | 5.4 | 6.2 | 6.2 | 10.9 | 9.4 | 7.6 | 0 | |
| **Finnish** | 5.7 | 6.3 | 4.1 | 16.6 | 7.5 | 12.1 | 16.6 | 9.4 | 8.5 | 11.5 | 20.2 | 13.4 | 10.5 | 11.2 | 8.3 | 6.0 | 13.7 | 7.9 | 15.6 | 8.7 | 13.7 | 10.9 | 8.2 | 5.4 | 0 |
| **Hungarian** | 8.5 | 4.1 | 4.9 | 31.6 | 18.5 | 18.2 | 27.5 | 50.4 | 42.0 | 22.3 | 24.4 | 16.4 | 18.0 | 18.2 | 7.6 | 8.6 | 16.6 | 10.5 | 13.0 | 14.6 | 20.9 | 20.2 | 11.0 | 9.6 | 11.2 |
| | BAS | LAP | SAR | AUT | CZE | FRE | GER | POL | RUS | SWI | BEL | DAN | DUT | ENG | ECE | IRI | NOR | SCO | SWE | GRK | ITA | POR | SPA | YUG | FIN |

*Table 3.4. Number of immigrants between 26 European ethnies needed to reduce the ethnic genetic interests of a random native by the equivalent of one child. (Based on $F_s$ genetic distances provided by Cavalli-Sforza et al., 1994, p. 270).*

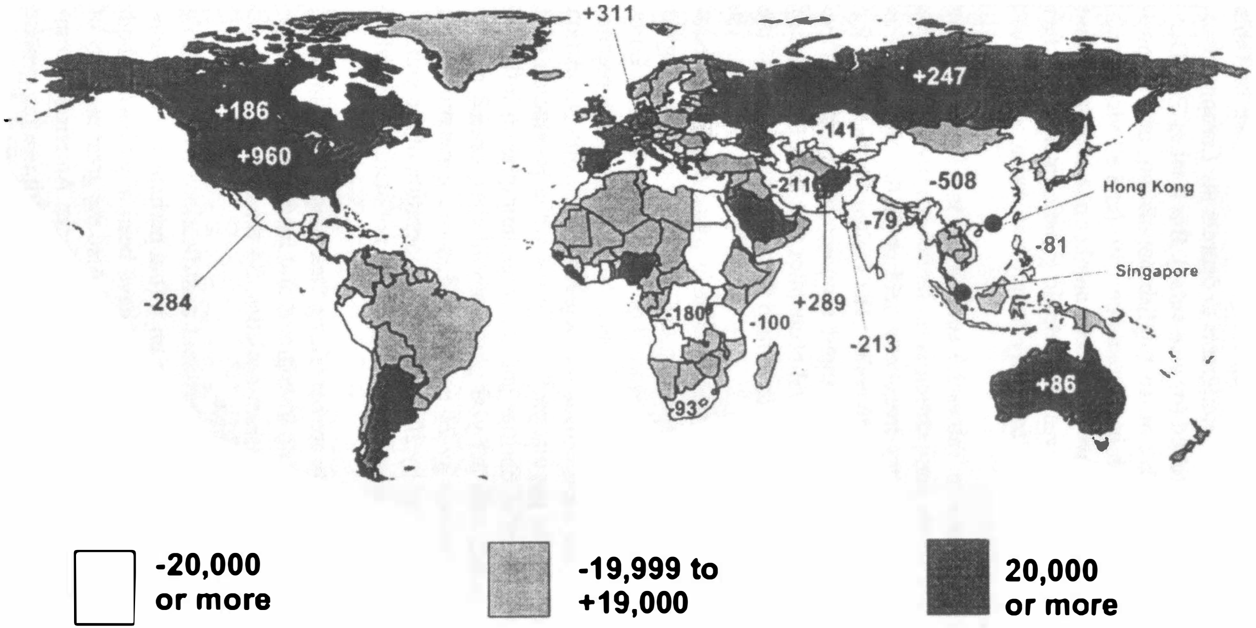
There is a striking contrast between the replacement effects shown in Table 3.3 and 3.4. It requires only 1.1 African immigrants to depress the European genetic interest by the equivalent of one child (or vice versa). But it takes 59.9 Danish immigrants to have the same effect on an English population, or 27 Polish immigrants on Germans, or 42 English immigrants on Irish (and all vice versa). The infinity symbol ' o ' is meant to show that a large number of immigrants from the same ethny can immigrate without reducing ethnic genetic interests. In fact too large a rise in population numbers from any source will exhaust resources and endanger long-term interests.

The replacement effects shown in Tables 3.3 and 3.4 put in a harsh light the widespread assumption that ethnic competition is no longer adaptive.[18] Take the United States as an example, a country frequently held up as the unambiguous economic beneficiary of growing ethnic diversity. The United States is also the most powerful state in the world, with the largest economy and most effective armed forces. Yet like undeveloped peripheral economies that bore the brunt of colonial expansion from 1500, it is failing to defend the genetic interests of the majority of citizens.

Earlier in the chapter I mentioned the rapid decline in white American's relative fitness. That trend warrants closer inspection and consideration of its impact on other ethnies. Since the immigration reform bill of 1965, Americans of European descent have fallen rapidly in relative numbers. In 1960, the white population was 88.6 percent.[19] By the 2000 census the non-Hispanic white population was down to 69.6 percent of the population.[20] While the white population kept growing, the higher birth rate of minorities and the large immigration influx of almost one million legal immigrants per year plus many illegals, caused its proportion of the population to decline by 21 percent within two generations. The US Census Bureau projection is that by 2050 the white proportion of the population will be 52.8 percent.[21] The United States' founding population is heading towards minority status by 2060.

By the same token, the immigrants are benefiting their own genetic interests. Their home countries typically accept no immigrants and have much higher fertility rates and populations than do Western societies. So the process is a boon for the genetic interests of immigrant ethnies.

Many post-1965 immigrants with professional qualifications have arguably boosted the economy above the load they exert on it (but perhaps not the country's long-term carrying capacity). However, most have been a net burden both on the public purse and the jobs of native Americans.[22] Also the great majority of immigrants are genetically distant from European and African Americans, coming mainly from Mexico and East Asia. Cavalli-Sforza et al. estimate the genetic distance between Europeans and American Indian as 0.1038, which has been re-


+311
+186
+960
+247
-141
-508
-211
-79
Hong Kong
-81
Singapore
-284
-180
-100
+289
-213
+86
93
-20,000 or more
-19,999 to +19,000
20,000 or more

Map *3.1*. Global net annual migration by country, *1996–2001*. Most western societies show significant intakes. while non-western societies are usually neutral or show outflow (based on *U.S.* Bureau of Census estimates and projections). Numbers indicate average annual net migration in thousands for selected countries. Many of the smaller countries are classified as having little or no net migration. although reliable data are not available. Printed with permission of Rodger Doyle.

duced somewhat due to European admixture, while the distance between Europeans and Northeast Asians is 0.0938 (see Table 3.2 above; all figures in the Tables are multiplied by 10,000).[23] This means that Mexican and Northeast Asian immigration has effectively replaced a great many native European- and African-American genes as a proportion of the country's long-term carrying capacity. Prospectively, Americans of European and African descent have lost, and are losing, the equivalent of millions of children due to post-1965 immigration.[24] The same is happening to many other societies. Map 3.1 shows asymmetries of international immigration in the second half of the 1990s.

Despite the above demographic trends, it is sometimes maintained that ethnic competition no longer pays. If one takes ethnically-restrictive immigration policy to be a form of inter-group competition, then Americans of European and African descent would have benefited by conserving their genetic interests had they engaged in competition of this form, for example by maintaining the quota system enacted by Congress in 1924. This system was aimed at maintaining ethnic proportions within the country that existed in the late nineteenth century. Conversely, any efforts by minorities to overturn that quota system and widen the 1965 open door constituted an act of competition with the ethnic majority that has harmed majority genetic interests more than any terrorist attack or any war.

As noted earlier, economic effects can indirectly benefit the native population by increasing their country's carrying capacity, thus helping all resident groups increase their absolute numbers. But this argument can be taken to absurd lengths. For example, if the members of an immigrant ethny are generally more productive than the natives, complete replacement would result in the carrying capacity being greatly increased, but this would still mean extinction for the natives. Alternatively, native numbers might be increased in absolute terms by immigrant contributions to the economy. But if this results in them falling in relative numbers to minority status, they are likely to lose control of state policy and be unable to prevent their further marginalization. Clearly there will be an optimum level of immigration rather than a maximum, defined by countervailing costs and benefits. When genetic interests are taken into account, immigration of genetically distant groups will be most adaptive when kept to the minimum necessary to fill vital economic needs, rather than pushed to a maximum in pursuit of short-term economic gain.

Let me illustrate the previous point with an historical example. Imagine that in 1600 American Indians had been offered an informed choice between two futures in the year 2000. One future is the present United States with a level of economic development unattainable without the efforts of millions of settlers and immigrants from Europe. The other is one or more Indian civilizations in possession of the present area of the United States but with economies less developed than at present. Which would they have chosen if they had valued their ethnic genetic interests? A temporary delay, even one of decades or centuries, in acquiring some skill or institution would seem a weak excuse for sacrificing the future of all succeeding generations. In the modern era of automation the rush to import manual labour is much more short sighted. Even if the economy and with it the population failed to grow at maximum speed this would be a small price to pay for retaining a continent for one's ethnic kin.

In this chapter I have tried to express ethnic genetic interests in terms of equivalent numbers of close kin. When the abstract formula and data of population genetics are expressed in these human terms, it becomes easier to understand that people have important genetic stakes in their ethnies as well as in their families. Some will respond, 'Noone cares about genetic interests!'. In the next chapter I consider this and other objections to the concept of genetic interests.

## Notes

1 Parsons (19 8).

2 *Statistical Abstract of the United States: 20 1*, Table 15. This is probably an overestimate of the white proportion, because it includes Hispanics of partly Amerindian descent who classify themselves as of wholly European descent. For 21 0 projections, see US Census Bureau (20 0, internet data Table NP-T4-H, middle series projection). The total US population is projected to be 571 million in 21 0, with the 'white' population at 404 million and the Hispanic population at 1 9 million. The resulting projection of 40 percent non-Hispanic white is probably an underestimate because the Hispanic population is partly of European races.

3 See CIA World Factbook, January 2002, http://www.cia.gov/cia/publications/factbook/.

4 Browne (20 0).

5 *International Herald Tribune* 23-24 March 20 2, p. 3.

6 Beaumont (2002).

7 In 20 2 only one third of Russia's frontier-crossing posts had immigration checkpoints (*Moscow News* 33, 28 Aug.-3 Sept 20 2, p. 4).

8 W. D. Hamilton (1975, p. 148).

9 Hardin (19 8; 1974/20 1; 19 3).

10 The concept of carrying capacity has been criticized because of the difficulty, and perhaps impossibility, of precisely quantifying that capacity for any particular territory. The variables that determine carrying capacity are subject to human choice, for example lifestyle as constituted by use of technology and types of foods preferred (Cohen 19 5; Daily and Ehrlich 1992). That does not imply the absence of limits to growth (Clarke 2002), only that the analysis of those inevitable limits is difficult and that, where error-prone, should err on the side of conservation; it is safer to underestimate than overestimate carrying capacity.

11 E. O. Wilson (2002, p. 72).

12 Hardin (1974).

13 Cavalli-Sforza et al. (1994. p. 75).

14 Hamilton (1975).

15 In fact if die off due to exceeding the carrying capacity were randomly distributed, the immigrants or their descendants would bear their share of the general population decline. In the case of 10,000 immigrants to a population of 50 million, that share would be 2 individuals (10,000 - 10,000 x 50,000,000/50,010,000). Complete replacement becomes a poorer approximation when the number of immigrants is a large fraction of the native population.

16 English parent-child kinship in the context of a population consisting of English and Bantu is f = 0.25 + (0.2288 x 3/4) = 0.4216. 10,000 English removed = 10,000 x 0.2288 = 2288 aggregate kinship lost. 10,000 Bantu entering = 10,000 x -0.2288 aggregate kinship lost. Total loss = 4576 aggregate kinship. Equivalent number of English children = 4576/0.4216 ≈ 10,854 children lost.

17 Cavalli-Sforza et al. (1994).

18 E.g. Rubin (2000).

19 Statistical Abstract of the United States: *2001*, Table 10; Hispanics were not yet counted separately.

20 US Census Bureau website, May 2002, Table PCT002. The white population is somewhat larger than stated because a minority of Hispanics are of predominantly European descent.

21 Statistical Abstract of the United States: *2001*, Table 15.

22 Borjas (1999); Smith and Edmonston (1997).

23 Cavalli-Sforza et al. (1994, p. 80).

24 Assuming that European admixture has reduced the European-Mexican genetic distance by 50 percent to 0.052. Nevertheless 2.8 Mexican immigrants replace a European-American child, and 1.7 Northeast Asian immigrants do the same. Even fewer will replace an African American child - only 0.9 Mexican and 1.0 Northeast Asian immigrants (based on genetic distances between unmixed populations).

# 4. Who Cares? . . . and other Objections to the Concept of Genetic Interests

Summary

(4a) Objection from lack of human motivation: **Who** cares?
(4b) Objection from the teleological nature of genetic interests.
(**4c**) Objection from levels of analysis: **Do** only genes have genetic interests?
**(4d)** Objection from competition **between** genes in the same genome.
(4e) Objection from the genetic unity of mankind.
(4f) Objection from random genetic drift
(4g) Objection from non-genetic replicators
(4h) Objection from inequality in ethnic genetic interests.

In this chapter I try to anticipate objections to the notions that genetic fitness is an interest and that it is the only ultimate one. Some of these objections are plausible, at least initially, while others can be readily dispensed with. The idea that cultural group strategies (section 4g) are ultimate interests warrants serious attention, though I am critical of the idea. I very much doubt that this chapter will resolve all objections in the minds of all readers, but my aim is the more modest one of simply identifying some major lines of criticism and defence and thus facilitating future debates about genetic interests.

The six criticisms I discuss in this chapter are: (a) Objection from lack of human motivation: Who cares?; (b) Objection from the teleological nature of genetic interests; (c) Objection from levels of analysis: Do only genes have genetic interests?; (d) Objection from competition between genes in the same genome; (e) Objection from the genetic unity of mankind; (f) Objection from random genetic drift; (g) Objection from non-genetic replicators; and (h) Objection from inequality in ethnic genetic interests.

## (4a) Objection from lack of human motivation: Who cares?

Perhaps genes are not interests, if interests are defined as conscious wants. The *Oxford English Dictionary* offers one of many definition of interests as a kind of feeling: '7.a. The feeling of one who is concerned or has a personal concern in any thing; hence, the state of feeling proper to such a relation'. Life, liberty and happiness qualify as interests by this definition because all are valued in mind and action. Motivation-based interests are to be expected from the perspective of neo-Darwinian evolutionary theory because motivations are usually a good guide to adaptive living. Life, liberty and property are individual phenotypic interests as well as being valued ends in themselves. What could be more evolutionary than to be motivated to protect our own lives and those of kin? Talk of genetic interests is nothing more than metaphysics, the objector might continue. The concept has no implications for the real world. People look after their genetic interests, or not, without being explicit about it. People have been living, breeding, and dying since the species began. Populations have waxed and waned, mixed and moved, and we're still here. What counts is the happiness and rights of human beings, not the destiny of tiny unfeeling fragments of DNA. Compared to feelings the gene is a highly abstract conception of little interest, since it involves mere sequences of nucleic acids with no human (phenotypic) qualities. It does not by itself elicit any emotion, except sometimes curiosity. How can this be construed, it might be asked, as an interest in the usual sense of the word? Even the creator of inclusive fitness theory found it difficult to identify with the genetic level of analysis: '[O]ne thing has not changed—this is my dislike for the idea that my own behaviour or behaviour of my friends illustrates my own theory of sociality or any other. I like always to imagine that I and we are above all that, subject to far more mysterious laws. . . . [Yet my theory] has turned out very successful.'[1] Alexander's remarks on the possibility for deliberate pursuit of genetic interests can be interpreted as calling into doubt the meaningfulness of genetic interest, even though he sees this as the ultimate interest:

> We can easily assume that the capacity for culture has allowed (as an incidental effect) various degrees of uncoupling of human behavior from patterns that would maximize genetic reproduction. In modern urban society, such uncoupling is rampant. It is my strong impression . . . that the use of self-reflection to contemplate the raison d'etre of genes is not an evolved function of these genes but an incidental effect of their action which owes its existence to the rise of technology. . . . I suspect that we would have to undergo considerable genetic evolution before reflection on our genetic history would be likely to cause us to maximize our reproduction.[2]

On the one hand Alexander recognizes the existence of genetic interests, and notes that conscious efforts to advance them would be adaptive. He is not claiming that, to be an interest, it must be apprehended as such and actively striven for. Neither must some proximate interests. The insane and retarded still have an interest in maintaining themselves in cleanliness and dignity, even if they do not recognize the difference. The lazy and modest still have an interest in some of the things money can buy. But Alexander maintains that humans will not take genetic interests seriously until they evolve a special mental module like the appetite system or the emotions. In the parlance of evolutionary psychology, he thinks that without domain-specific mental capacities, maintenance of genetic interests must be left to other instincts such as parent-child bonding and sexuality, which are not general strategies able to take into account changing conditions. If he is right, if humans are not evolved consciously to pursue genetic interests even after reflecting on their genetic history, then the concept of genetic interest might be hollow. Perhaps if this interest cannot motivate protective action it must remain a descriptive idea unless and until humanity evolves to the extent that people can get excited about it.

Surely Alexander is mistaken. In our modern world many interests are not intrinsically motivating, only being valued when we understand their significance. Would keys to a castle be more than a curio to hunter-gatherers unaware of the wealth and prestige they can unlock? It is in our material interest to hold keys and analogous devices (degrees, credit cards, pass words, bank account numbers) despite their abstractness. Recognizing something as an interest requires background knowledge, sometimes quite sophisticated, of the contexts in which it becomes valuable. Such recognition depends on general intelligence, what evolutionary psychologists call domain-general capacities. General intelligence is more ponderous than the domain-specific modules that process information subconsciously with such alacrity. But our civilizations are largely built on the scientific and technical advances accumulated from conscious pondering.

It might be countered that objects and codes are not interests in themselves. They only attain value because they allow access to things we all intuitively value, that we have feelings about, such as status and resources. In this account keys are not intrinsic interests. It is objects, states of being and other individuals that we consider valuable—that are intrinsic interests. Nothing is an interest that does not unlock such valuables. This is a plausible view, but hardly a criticism of the notion of genetic interests. Genes produce myriad effects in the real world, including health and kinship, that are intrinsically valuable. Thus genes have always been valuable, even before they and their actions were discovered. Recall from Chapter 1 that Alexander maintains that genetic interests exist even if not consciously grasped.[3]

On the whole, serving genetic interests upholds human proximate interests. Many of the values we hold most dear are preserved down the generations because individuals strive to preserve their genetic interests, even when those interests are vaguely apprehended or not apprehended at all. The maternal affection shown by mothers in all mammalian species directly serves their genetic fitness by promoting the continuation of their genes. Conversely, if maternalism, with its painstaking devotion, sacrifices and risk, did not serve genetic fitness, the genes coding for that costly set of behaviours would ultimately be selected out of the gene pool. The same applies on the mass level, in relations between ethnies. An obvious example is attachment to ethnic identity, which indirectly motivates defence of genetic continuity. Another is the self-sacrificial patriotism of warriors in societies primitive and modern. This is not to suggest that pursuing proximate interests is pleasant to all concerned. The aggressive content of human nature has been adaptive for negotiating dominance rank and acquiring and defending resources. The fact remains that proximate interests such as status and wealth are paths to genetic fitness. A less obvious case is the compassion and mutual aid shown by welfare societies. The welfare state is without exception the product of political developments in relatively ethnically homogeneous societies.[4] When rising ethnic diversity leads to ethnic stratification, as found in the United States, Canada, and Britain, welfare tends to decline.[5] Wealthier taxpayers who disproportionately foot the welfare bill, are more willing to subsidize the needy from their own ethnies than those from others. Welfare and compassion are positively valued, as are privation and exclusion negatively valued. These values are affected on a mass scale by ethnic nepotism, and that phenomenon serves the genetic interests of the discriminating taxpayers. To object that altruism should be indiscriminate, equally helping the needy of all groups, is not to deny that nepotism is better than no altruism at all. Once again, serving genetic interests upholds human values.

The point should be emphasized that genes only become interests when part of the reproductive chain of life; when they contribute to the creation of humans and influence their development; or when such function is in prospect. If it were possible to manufacture billions of copies of one's genome in the form of powdered protein, and disperse them in the world or in outer space, that would hardly be in one's genetic interests. But it does serve genetic interests to have part of one's genome help form a new human. Critics of the idea of genetic interests must somehow get around the core biological idea that it is adaptive to reproduce.

The objective sense of an interest is repeatedly implied as a usage of the word. The Oxford Dictionary again:

> Interest . . . I. 1. The relation of being objectively concerned in something, by having a right or title to, a claim upon, or a share in. 2. a The relation of being concerned or affected in respect of advantage or detriment; esp. an advantageous relation of this kind. . . . b. That which is to or for the advantage of any one; good, benefit, profit, advantage. . . . c. in the interest (interest) *of*: on the side of what is advantageous or beneficial to. . . . 8. The fact or quality of mattering or being of importance (as belonging to things); concernment, importance.